**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**
**SAN FRANCISCO BAY REGION**

ORDER NO. R2-2002-0092

ADOPTION OF FINAL SITE CLEANUP REQUIREMENTS AND RESCISSION OF BOARD ORDER NO. 01-062 FOR:

BEAVER LUMBER COMPANY, WINKEL PROPERTIES, LLC, AND ALLEN K. REAM (AS TRUSTEE OF THE MILTON P. REAM TRUST #4)

for the property located at

535 REED STREET
SANTA CLARA
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Board), finds that:

1. **Site Location**: The site, located at 535 Reed Street in the City of Santa Clara, is approximately 13.47 acres. It is located approximately one mile south of Highway 101 and approximately ½ mile west of the San Jose International Airport (see Figure 1). The site is located in a commercial/industrial area of Santa Clara. The Guadalupe River is approximately one mile to the northeast.

2. **Site History**: Beaver Lumber Company, a California Corporation, is a wholesale lumber supplier specializing in custom millwork. The property is currently owned by an undivided interest consisting of Winkel Properties, LLC and the Milton P. Ream Trust #4 (Allen K. Ream, trustee). Winkel and Ream (or their predecessors) purchased the property from Redwood Casket Company in the 1960s. Beaver Lumber Company operated at the site from about 1965 to April 2001. Wood preserving operations were formerly conducted on site. This was done by dipping wood products into a partially-buried concrete tank filled with pentachlorophenol (PCP), a wood preservative. The size of the tank was approximately 24 feet in length by 12 feet in width by 10 feet in depth (2 feet above ground and 8 feet below ground). Wood products were dipped into the tank, raised above the tank to drain excess solution, and then finished dried and cured. The PCP dipping tank was removed from service sometime in the late 1980s. The above ground portion of the tank was demolished, and the concrete and other debris and soil were placed in the below ground cavity, then filled and leveled to grade. Wood preserving operations were ceased after the dipping tank was demolished. Several underground storage tanks were used at the site for the storage of gasoline, diesel, and waste oil. All underground storage tanks have been removed. Beaver Lumber Company ceased all operations and vacated the site as of April 30, 2001. The current owners (Winkel and Ream) plan to redevelop the site.

3. **Named Dischargers**: Beaver Lumber Company is named as a discharger because of substantial evidence that it discharged pollutants to soil and groundwater at the site, including its use of PCP in wood preserving operations, and the presence of this same pollutant in soil and groundwater in the immediate vicinity of the former dipping tank.

   Allen K. Ream (as trustee of the Milton P. Ream Trust #4) and Winkel Properties, LLC are named as dischargers because they currently own the property, and they owned the property during or after the time of the activity that resulted in the discharge, and had knowledge or should have had knowledge of the discharge or the activities that caused the discharge, and had the legal ability to prevent the discharge.

   If additional information is submitted indicating that other parties caused or permitted any waste to be discharged on the site where it entered or could have entered waters of the state, the Board will consider adding those parties' names to this order.

4. **Regulatory Status**: The Board has adopted the following order for this site:

   - Site Cleanup Requirements; Order No. 01-062, adopted June 19, 2001

5. **Site Hydrogeology**: The Site lies in the Santa Clara Valley, where the subsurface is generally comprised of as much as 1500 feet of unconsolidated and semi-unconsolidated deposits. The deposits are of the Quaternary alluvium of the Santa Clara Formation, which consists of inter-bedded fine and coarse-grained continental sediments, derived from the surrounding mountains. The soil lithology beneath the area consists of inter-fingered silty clays, silts, sands, and gravels deposited by meandering ancestral stream channels. Groundwater elevations in the Santa Clara Valley typically vary over time, but were measured at 7-9.5 feet below ground surface in January 2001. Groundwater flows in a northerly to northeasterly direction.

6. **Remedial Investigation**: In 1985, three groundwater monitoring wells were installed during the investigation of a leaking underground storage tank. A soil sample collected from one of the monitoring well borings contained PCP at 0.04 milligrams per kilogram (mg/kg). In 1991, a soil sample collected from a boring drilled beneath a waste oil tank contained a PCP concentration of 190 mg/kg. The waste oil tank was removed in about 1992 along with four other underground storage tanks. There was no follow-up investigation for the PCP contamination until $E_2C$, Inc. collected soil and groundwater samples in October 2000. Soil in the area of concern had PCP concentrations up to 48 mg/kg. PCP concentrations in the groundwater were up to 300 micrograms per liter (µg/l). $E_2C$, Inc. performed a follow up investigation in February and March of 2001 to determine the extent of the PCP contamination. PCP was detected in the groundwater at concentrations up to 750 µg/l. Soil contamination was

limited to a small area in the immediate vicinity of the former dipping tank. Groundwater contamination has migrated about 350 feet from the former dipping tank in the direction of groundwater flow. The vertical and lateral extent of the groundwater contamination has been adequately defined. The lateral extent of the contamination is shown in figure 2.

7. **Interim Remedial Measures**: Approximately 300 cubic yards of PCP contaminated soil were excavated from around the former PCP dip tank. All soils above the cleanup goal (5 mg/kg, as set in Board Order No. 01-062) were excavated. The concrete vault that formerly housed the dip tank was destroyed, removed from the excavation, and hauled off-site. Standing groundwater in the excavation pit was treated with Oxygen Releasing Compound (ORC). This treatment reduced the PCP groundwater concentrations in the excavation pit from 2500 µg/l to 3.2 µg/l. The excavation pit will be backfilled with the soils removed from the pit as soon as the soils have been effectively remediated. The excavated soils are being treated on site in Storage Building #2 using a fungal bioremediation method. Contaminated soils were mixed with sawdust and inoculated with the fungus, *Phanerochaete ostreatus*. The soil piles were sprayed with water three times per week and tilled once per month. The first three months of this treatment did not produce the desired reduction in PCP concentrations. Therefore, the system is being reevaluated and redesigned. Seven groundwater monitoring wells have also been installed on site in order to assure that contaminated groundwater is not migrating significantly.

8. **Feasibility Study**: The dischargers submitted a Remedial Action Plan (RAP), dated June 1, 2002, which evaluated natural attenuation, enhanced bioremediation, and pump and treat technologies in order to determine the most appropriate strategy. The cost estimates for these three strategies were $218,000, $435,000, and $1,100,000, respectively. While natural attenuation was the least expensive strategy, the time expected to achieve cleanup goals is uncertain and may be unacceptably long. A pump and treat strategy would cost about 2.5 times that of enhanced bioremediation, and its effectiveness is uncertain. Therefore enhanced bioremediation was selected as the most appropriate remedial strategy.

9. **Cleanup Plan**: The dischargers propose to use enhanced bioremediation to remediate residual PCP in the groundwater. The RAP proposes to inject Hydrogen Releasing Compounds (HRCs), or Oxygen Releasing Compounds (ORCs), into the groundwater to accelerate the degradation of PCP. The injection of HRC or ORC may degrade PCP directly through chemical reduction, or improve conditions for naturally occurring bacteria in the soil and groundwater to reduce PCP through biological processes. Four new monitoring wells are proposed in the mid-plume area in order to evaluate the effectiveness of this approach.

10. **Risk Assessment**: A site-specific risk assessment was not performed at this site. Instead, Risk-Based Screening Levels[1] (RBSLs) were used to determine the appropriate cleanup goals. RBSLs use conservative assumptions to determine contaminant concentrations that will be protective of human health and the environment. In general, cleanup levels determined using RBSLs are more protective than those determined using a site-specific risk assessment. This provides a safety margin and eliminates the need to perform an expensive site-specific risk assessment. An industrial use scenario was used for determining the cleanup goals. The site is in an industrial area and there is no residential use in the immediate area. The dischargers plan to redevelop the site for industrial use.

Due to excessive risk that may be present at the site pending full remediation, institutional constraints are appropriate to limit on-site exposure to acceptable levels. Institutional constraints include a deed restriction that notifies future owners of sub-surface contamination and prohibits the use of shallow groundwater beneath the site as a source of drinking water until cleanup standards are met.

11. **Basis for Cleanup Standards**

a. **General**: State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. The previously-cited cleanup plan confirms the Board's initial conclusion that background levels of water quality cannot be restored. This order and its requirements are consistent with Resolution No. 68-16.

State Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

b. **Beneficial Uses**: The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and

[1] Application of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater (December 2001). San Francisco Bay Regional Water Quality Control Board.

consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in Title 23, California Code of Regulations, Section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels. Groundwater underlying and adjacent to the site qualifies as a potential source of drinking water.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the site:

a. Municipal and domestic water supply
b. Industrial process water supply
c. Industrial service water supply
d. Agricultural water supply

While the shallow aquifer is currently not used for any purpose, the deeper regional aquifer (below 200 feet) in the general area is currently used as a major drinking water supply source. At present, there is no known use of the shallow groundwater underlying the site for the above purposes.

c. **Basis for Groundwater Cleanup Standards**: The groundwater cleanup standard of 1 µg/l for PCP shall be met in all wells identified in the Self-Monitoring Program. This standard is based on the maximum contaminant level considered safe for drinking water purposes. Cleanup to this level will result in acceptable residual risk to humans.

d. **Basis for Soil Cleanup Standards**: A soil cleanup standard is not necessary because PCP contaminated soils have been remediated to levels that will not present a threat to human health or the environment, or will cause a threat to groundwater from leaching.

12. **Future Changes to Cleanup Standards**: The goal of this remedial action is to restore the beneficial uses of groundwater underlying and adjacent to the site. Results from other sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation at this site may not be possible. If full restoration of beneficial uses

is not technologically nor economically achievable within a reasonable period of time, then the discharger may request modification to the cleanup standards or establishment of a containment zone, a limited groundwater pollution zone where water quality objectives are exceeded. Conversely, if new technical information indicates that cleanup standards can be surpassed, the Board may decide that further cleanup actions should be taken.

13. **Basis for 13304 Order**: The dischargers have caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.

14. **Cost Recovery**: Pursuant to California Water Code Section 13304, the dischargers are hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this order.

15. **CEQA**: This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.

16. **Notification**: The Board has notified the dischargers and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.

17. **Public Hearing**: The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

**IT IS HEREBY ORDERED**, pursuant to Section 13304 of the California Water Code, that the dischargers (or their agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

## A. PROHIBITIONS

1. The discharge of wastes or hazardous substances in a manner that will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.

2. Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

## B. TASKS

### 1. SOIL REMEDIATION REPORT

COMPLIANCE DATE: January 1, 2003

Submit a technical report acceptable to the Executive Officer documenting the completed remediation of the excavated soil from the former PCP dip tank pit, and the backfill of the excavation. If the soil remediation is not successful in achieving the soil remediation goal of 5 mg/kg, the report should document where and how the soil was disposed, and that the excavation pit was backfilled with clean soil from another source.

### 2. ENHANCED BIOREMEDIATION WORKPLAN

COMPLIANCE DATE: November 1, 2002

Submit a workplan acceptable to the Executive Officer providing details for enhanced bioremediation as proposed in the RAP. The report should provide the chemical that will be used, the locations where the chemical will be injected into the groundwater, and the quantity of chemical to be injected at each location. The report should also provide the rationale for the chemical that will be used and a description of the chemical and/or biological processes that are expected to occur when the chemical is injected into the groundwater.

### 3. ENHANCED BIOREMEDIATION IMPLEMENTATION REPORT

COMPLIANCE DATE: January 1, 2003

Submit a technical report acceptable to the Executive Officer documenting the implementation of the enhanced bioremediation workplan as described in Task 2.

4. **ENHANCED BIOREMEDIATION EVALUATION REPORT**

COMPLIANCE DATE: January 1, 2005

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of enhanced bioremediation. The report should summarize in text as well as graphically, the effectiveness in controlling contaminant migration and reducing PCP concentrations in groundwater. Graphs showing the contaminant concentration vs. time are required to meet this task. If enhanced bioremediation is not effective, the report should propose additional remedial measures as well as an implementation schedule.

5. **PROPOSED INSTITUTIONAL CONSTRAINTS**

COMPLIANCE DATE: February 1, 2005

Submit a technical report acceptable to the Executive Officer documenting procedures to be used by the discharger to prevent or minimize human exposure to soil and groundwater contamination prior to meeting cleanup standards. Such procedures shall include a deed restriction prohibiting the use of shallow groundwater as a source of drinking water. This task may be waived by the Executive Officer if it appears that the remediation will be effective in achieving cleanup goals in a reasonable amount of time.

6. **IMPLEMENTATION OF INSTITUTIONAL CONSTRAINTS**

COMPLIANCE DATE: April 1, 2005

Submit a technical report acceptable to the Executive Officer documenting that the proposed institutional constraints have been implemented.

7. **FIVE-YEAR STATUS REPORT**

COMPLIANCE DATE: October 1, 2007

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved cleanup plan. The report should include:

a. Summary of effectiveness in controlling contaminant migration and protecting human health and the environment
b. Comparison of contaminant concentration trends with cleanup standards
c. Comparison of anticipated versus actual costs of cleanup activities

d. Cost effectiveness data (e.g. cost per pound of contaminant removed)
e. Summary of additional investigations (including results) and significant modifications to remediation systems
f. Additional remedial actions proposed to meet cleanup standards (if applicable) including time schedule

If cleanup standards have not been met and are not projected to be met within a reasonable time, the report should assess the technical practicability of meeting cleanup standards and may propose an alternative cleanup strategy. New technical information which bears on the approved cleanup plan and cleanup standards for this site shall be evaluated. Such technical reports shall not be requested unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved cleanup plan or cleanup standards.

8. **Delayed Compliance**: If the dischargers are delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.

## C. PROVISIONS

1. **No Nuisance**: The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).

2. **Good Operation and Maintenance (O&M)**: The dischargers shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.

3. **Cost Recovery**: The dischargers shall be liable, pursuant to California Water Code Section 13304, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the dischargers over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

4. **Access to Site and Records**: In accordance with California Water Code Section 13267(c), the discharger shall permit the Board or its authorized representative:

   a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
   b. Access to copy any records required to be kept under the requirements of this Order.
   c. Inspection of any monitoring or remediation facilities installed in response to this Order.
   d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.

5. **Self-Monitoring Program**: The dischargers shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.

6. **Contractor / Consultant Qualifications**: All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.

7. **Lab Qualifications**: All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).

8. **Document Distribution**: Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:

   a. City of Santa Clara
   b. Santa Clara Valley Water District

   The Executive Officer may modify this distribution list as needed.

9. **Reporting of Changed Owner or Operator**: The dischargers shall file a technical report on any changes in site occupancy or ownership associated with the property described in this Order.

10. **Reporting of Hazardous Substance Release**: If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the discharger shall report such discharge to the Regional Board by calling (510) 622-2300 during regular office hours (Monday through Friday, 8:00 to 5:00).

    A written report shall be filed with the Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

    This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.

11. **Periodic SCR Review**: The Board will review this Order periodically and may revise it when necessary. The discharger may request revisions and upon review the Executive Officer may recommend that the Board revise these requirements.

12 **Rescission of Existing Order**: This Order supercedes and rescinds Order No. 01-062.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 18, 2002.

Loretta K. Barsamian
Executive Officer

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FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY

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Attachments: Figure 1. Site Location
Figure 2. Site Map
Self-Monitoring Program

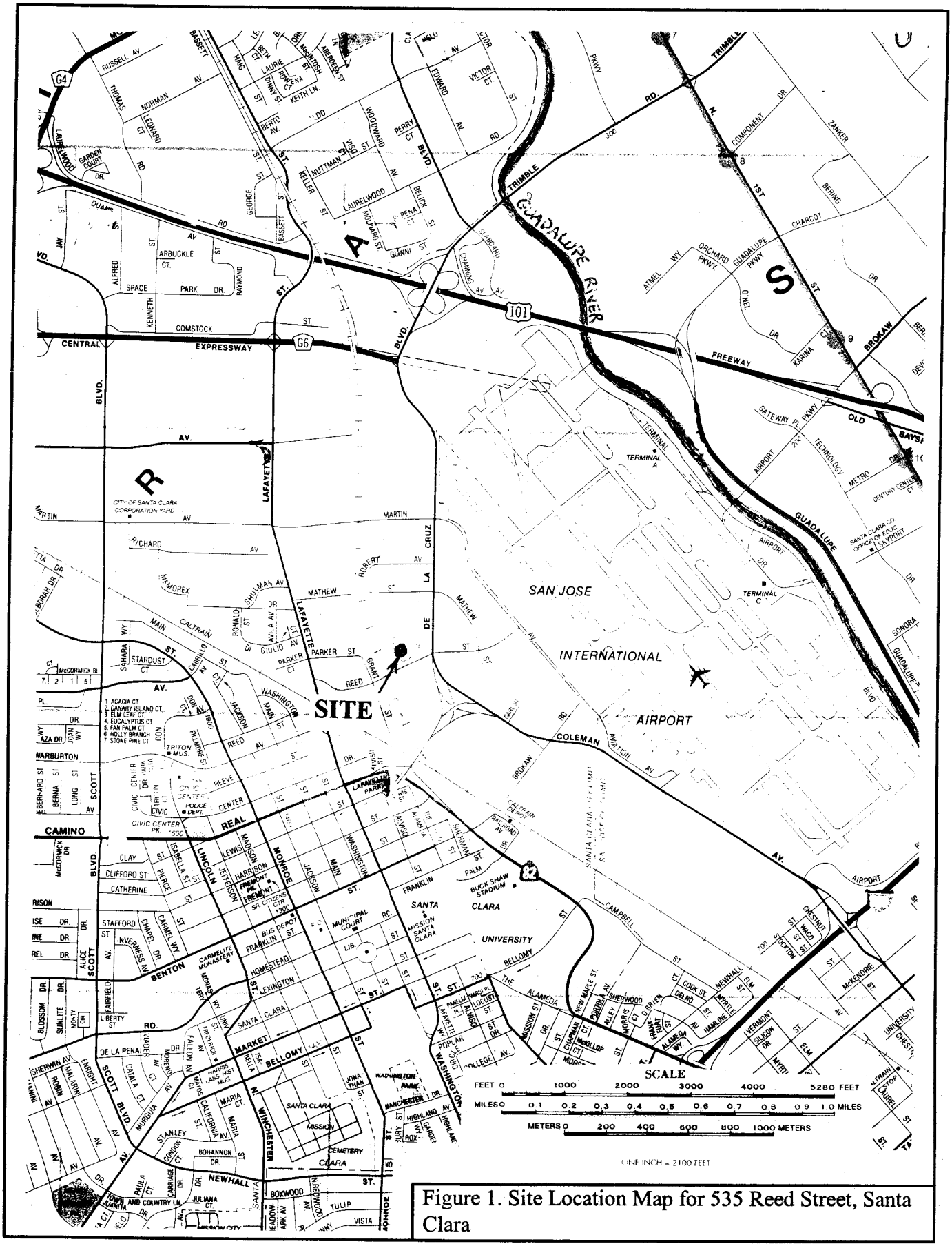


Figure 1. Site Location Map for 535 Reed Street, Santa Clara

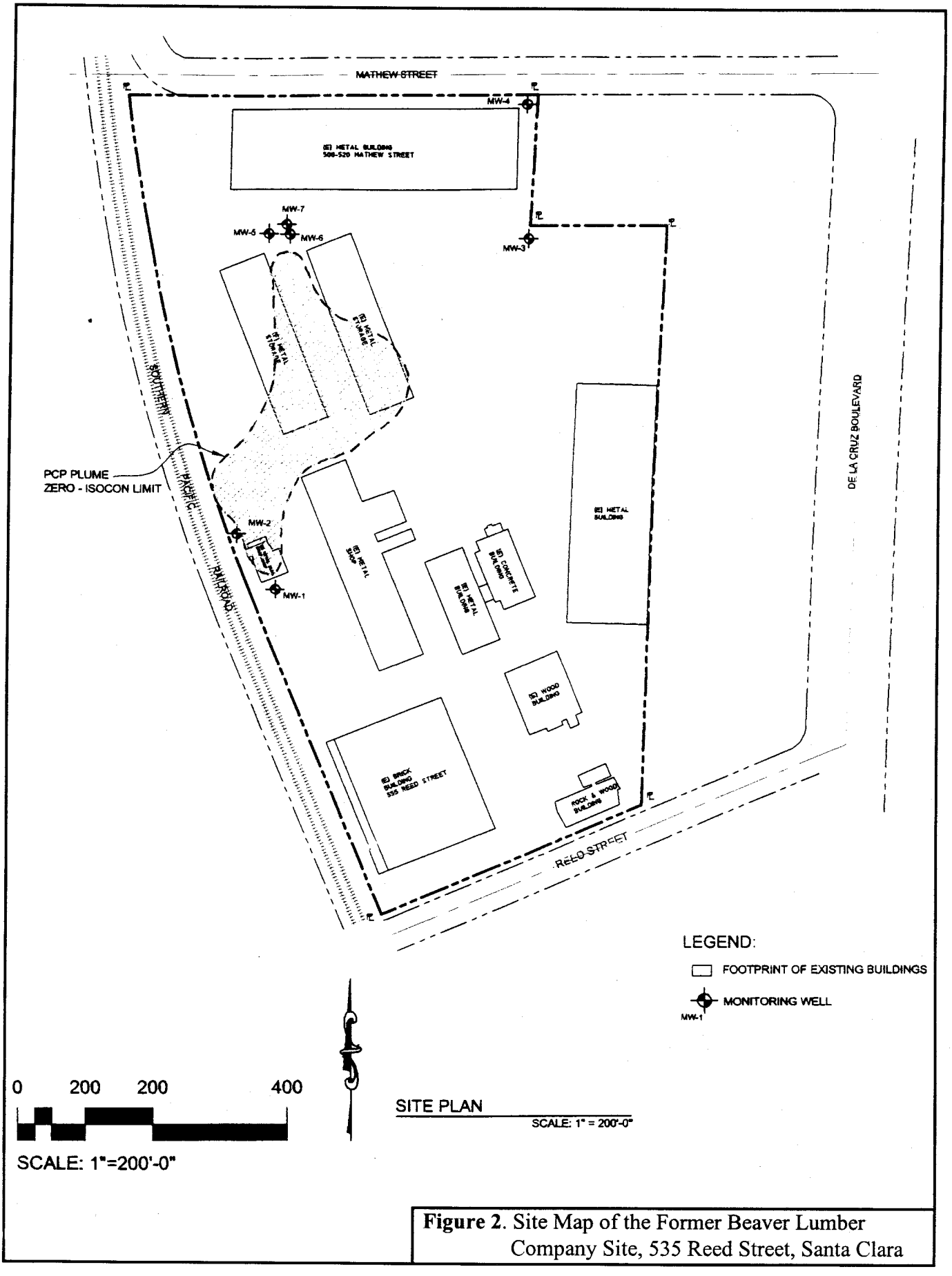


**Figure 2**. Site Map of the Former Beaver Lumber Company Site, 535 Reed Street, Santa Clara

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**
**SAN FRANCISCO BAY REGION**

SELF-MONITORING PROGRAM FOR:

BEAVER LUMBER COMPANY, WINKEL PROPERTIES, LLC, AND ALLEN K. REAM (AS TRUSTEE OF THE MILTON P. REAM TRUST #4)

for the property located at

535 REED STREET
SANTA CLARA
SANTA CLARA COUNTY

1. **Authority and Purpose**: The Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Board Order No. R2-2002-0092 (site cleanup requirements).

2. **Monitoring**: The dischargers shall measure groundwater elevations quarterly in all monitoring wells (MW-2, MW-3, MW-4, MW-5, MW-6, & MW-7) and shall collect and analyze representative samples of groundwater for PCP. Any new monitoring wells shall also be sampled on a quarterly basis and analyzed for PCP. The discharger may propose changes in the above schedule; any proposed changes are subject to Executive Officer approval.

3. **Quarterly Monitoring Reports**: The discharger shall submit quarterly monitoring reports to the Board no later than 30 days following the end of the quarter (e.g. report for first quarter of the year due April 30). The first quarterly monitoring report shall be due on October 1, 2001. The reports shall include:

   a. Transmittal Letter: The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the dischargers' principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

   b. Groundwater Elevations: Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map should be prepared for each monitored water-bearing zone. Historical groundwater elevations shall be included in the fourth quarterly report each year.

c. Groundwater Analyses: Groundwater sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater sampling results shall be included in the fourth quarterly report each year. The report shall describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).

d. Status Report: The quarterly report shall describe relevant work completed during the reporting period (e.g. site investigation, interim remedial measures) and work planned for the following quarter.

4. **Violation Reports**: If the dischargers violate requirements in the Site Cleanup Requirements, then the discharger shall notify the Board office by telephone as soon as practicable once the dischargers have knowledge of the violation. Board staff may, depending on violation severity, require the dischargers to submit a separate technical report on the violation within five working days of telephone notification.

5. **Other Reports**: The dischargers shall notify the Board in writing prior to any site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for site investigation.

6. **Record Keeping**: The dischargers or their agents shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.

7. **SMP Revisions**: Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the dischargers. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

I, Loretta K. Barsamian, Executive Officer, hereby certify that this Self-Monitoring Program was adopted by the Board on September 18, 2002.

Loretta K. Barsamian
Executive Officer